AMENDMENTS TO THE SPECIFICATION

Please add the following new paragraph between the paragraph starting at line 20 on page 10 and the paragraph starting at line 23 on page 10.

BRIEF DESCRIPTION OF THE DRAWINGS

Please replace the paragraph starting at line 1 on page 3 with the following paragraph rewritten in amendment format:

TWT's have be**en** used as variable frequency amplifiers. However, TWT's are rather expensive and often very complicated to use. Furthermore, TWT's require warm-up time before start meaning that TWT's cannot rapidly be switched on and off. In addition, wear out of TWT's is associated with high maintenance costs.

Please replace Paragraph starting at line 11 on page 4 with the following paragraph rewritten in amendment format:

It is another object of the present invention to provide an apparatus comprising a first semiconductor based electromagnetic generator, and a first applicator for holding a sample, which apparatus are capable of performing a controlled heating of the sample.

Please replace Paragraph starting at line 3 on page 7 with the following paragraph rewritten in amendment format:

d) applying electromagnetic radiation to the applicator at a second level of power and varying the frequency of the electromagnetic radiation between two predetermined values and with a predetermined resolution, the range defined by the predetermined values being included in the range defined by the predetermined values in step b), and determining a reflection factor of electromagnetic radiation from the sample at **[[at]]** least some (two) of the frequencies

covered by the range of the two predetermined values by determining the level of the feed-back signal, thereby obtaining a second set of reflection factors, and

Please replace Paragraph starting at line 20 on page 12 with the following paragraph rewritten in amendment format:

Semiconductor based microwave generators and amplifiers provide**[[s]]** a variety of advantages over conventional TWT's, gyrotrons and magnetrons. Examples of these advantages are:

Please replace Paragraph starting at line 32 on page 12 with the following paragraph rewritten in amendment format:

The amplifying means 29 can comprise a signal amplifier 29 and a power amplifier 30, as shown in FIG. 2. The signal amplifier 29 is a semiconductor-based device being adapted to amplify the signal from the signal generator. The gain of the amplifying means is adjustable by varying the level of a control signal. Thus the amplitude of the output can be selected by the operator.

Please replace Paragraph starting at line 1 on page 13 with the following paragraph rewritten in amendment format:

The power amplifier 30 is provided for further amplifying the signal from the signal amplifier. The power amplifier is also a semiconductor-based device with an adjustable gain. The gain is varied by varying the level of a control signal.

Please replace Paragraph starting at line 5 on page 13 with the following paragraph rewritten in amendment format:

The heating power applied to the applicator is preferably in the range of 1-2000 W depending on the sample size and the chemical reaction in question. Typical ranges are 1-300 W such as 5-50 W, 10-1000 W such as 30-100 W, and 50-2000 W such as 100-1000 W.

Please replace Paragraph starting at line 33 on page 13 with the following paragraph rewritten in amendment format:

The circulator 31 prevents the reflected power from the microwave applicator 24 and the distribution network 23 from entering the power amplifier 30. Instead the reflected power is directed to a dummy load 33 optionally connected to a first power meter 34. Some semi-conductor baser generators and amplifiers, e.g. Silicon-carbide generators/amplifiers, are not affected by backscattered microwaves, and the circulator 31 is not necessary when such generators/amplifiers are utilised.

Please replace Paragraph starting at line 32 on page 14 with the following paragraph rewritten in amendment format:

An example of such a network is coaxial cables with dividers in order to split up the power/signal line in as many power/signal lines as needed to feed all the separate applicators. Alternative ways of accomplish a distributing network is to use wave-guides, strip-lines etc. The distributing network can be an integral part of the applicator design as will be showed in FIGS. 3, 4, 5 and 6.

Please replace Paragraph starting at line 16 on page 16 with the following paragraph rewritten in amendment format:

The applicator is preferably adjustable so that it can be tuned to support modes depending on the used frequency. It should be noted that the applicator can have a quasistatic, near field,

surface field, single mode cavity or multi mode cavity, as well as an open ended cavity. The applicator can be tuned to make its resonance frequency correspond to the frequency of the signal connected to the input terminal 12, e.g. by adjusting certain geometrical parameters, such as a resonator rod, of it.

Please replace Paragraph starting at line 19 on page 18 with the following paragraph rewritten in amendment format:

Operating the controller 45 in heating mode puts specific requirements to the configuration of the controller. The controller is capable of setting and controlling the output power from the signal amplifier 29 and the power amplifier 30. Furthermore, the controller is capable of modulating the signal generated by the signal generator 28 so as to generate an output signal, which is a function of time such as a rectangular or triangular wave form. In the same context, the duty circle of the signal must be adjustable so as to reduce the power of the delivered signal.

Please replace Paragraph starting at line 32 on page 19 with the following paragraph rewritten in amendment format:

In the monitoring mode, a scan function is available that normalises the signal from a first scan (gives a strait baseline), and detects the difference from the normalised baseline during a number of subsequent scanning cycles. Tracking and locking to the frequency that gives maximum power absorbed in the sample 1, (moving maxima) is another available feature. The frequency of the microwave generator 28 is adjustable to an extent of at least .+-.30% around a centre frequency.

Please replace Paragraph starting at line 35 on page 20 with the following paragraph rewritten in amendment format:

In an apparatus with frequency tuning, an optimum of coupled energy into the reaction will occur at a specific frequency. This frequency will change according to the temperature in the reaction in accordance with the dependence of the samples_permittivity .epsilon. upon temperature.

Please replace Paragraph starting at line 1 on page 21 with the following paragraph rewritten in amendment format:

The term "chemical reaction" is intended to mean any inorganic and organic reaction involving the formation or breaking of a (covalent) bond between two atoms, as well as conformer reactions of clusters and large molecules. It should be understood that the term also includes reactions where enzymes are involved as catalysts, e.g. the_polymerase chain reaction (PCR) and similar types of reactions. The chemical reaction is preferably a reaction involving organic compounds, i.e. low molecular organic compounds and biological organic compounds (e.g. enzymes). It is furthermore preferred that a conversion of the chemical constitution of one or more organic compound takes place.

Please replace Paragraph starting at line 27 on page 21 with the following paragraph rewritten in amendment format:

The chemical reactions typically involve a starting material (substrate or "chemical species"), a reagent and optionally a catalyst (e.g. an enzyme such as a_thermostable DNA polymerase). The starting material can be any chemical substance in any phase, solid phase, liquid phase or gas phase. Included in starting materials are all materials used for e.g. solid support of reactants in chemical reactions. Starting materials also includes all materials (chemical

substances) formed under the chemical reaction and can be considered as new starting material for a subsequent chemical reaction during the same process or in a new process performed in the same apparatus. Starting material or reagents can also be included in the gas phase of an artificial atmosphere. The finished chemical product from a previous chemical reaction, performed in the apparatus, shall also be considered as starting material for a subsequent chemical reaction performed in the apparatus.

Please replace Paragraph starting at line 29 on page 26 with the following paragraph rewritten in amendment format:

In one intriguing variant (the "biosensor" variant) of the above method, the first (reference) varying of the frequency (step (b)) (a "scan") is performed prior to introduction of chemical substance to the sample. The sample can comprise an enzyme or a biomolecule or a cell, for which the chemical substance is a substrate or a ligand. The subsequent "scan" is then performed and the difference in reflection factor is expected to reflect the interaction between the chemical substance and the components of the sample. This embodiment can be an especially interesting variant for studying the interaction between a ligand/substrate and an enzyme. The heating (step (c)) is often omitted in this variant. Furthermore, repeating the steps will only be necessary in order to study the mentioned interaction over time, otherwise only comparison of two sets of reflection factors will be necessary.